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AUTHOR Donaldson, Megan F.
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ABSTRACT

The purpose of this study was to determine if the Phono-Graphix[TM] method, a reading program based on sounds, could help improve the spelling achievement of two kindergarten students. The students, identified as good readers/poor spellers, participated in eight 40-minute sessions. Their spelling skills were assessed before and after the implementation of the Phono-Graphix[TM] method and it was determined that their spelling achievement improved. Both children went from mid-late letter name to early-mid within word pattern spellers. The main feature of improvement was the marking of the long vowel. The results indicate that the Phono-Graphix[TM] reading program was able to raise the spelling performance of two kindergarten students with a discrepancy in their reading and spelling achievement. Appendixes provide three tables of data. (Author/RS)

Running head: **EFFECTIVENESS OF THE PHONO-GRAPHIX METHOD**

Effectiveness of the Phono-Graphix™

Method on Spelling Achievement

Megan F. Donaldson

University of Virginia

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Abstract

The purpose of this study was to determine if the Phono-Graphix™ method, a reading program based on sounds, could help improve the spelling achievement of two kindergarten students. The students, identified as good readers/poor spellers, participated in eight 40-minute sessions. Their spelling skills were assessed before and after the implementation of the Phono-Graphix™ method and it was determined that their spelling achievement improved. Both children went from mid-late letter name to early-mid within word pattern spellers. The main feature of improvement was the marking of the long vowel. The results indicate that the Phono-Graphix™ reading program was able to raise the spelling performance of two kindergarten students with a discrepancy in their reading and spelling achievement.

Effectiveness of the Phono-Graphix™ Method on Spelling Achievement

As adults, many of us feel as though there are more words in our language that we can read accurately than we can spell correctly. Spelling seems to be the more difficult of the two tasks (McGuinness, 1997). However, we have learned that students' reading and spelling skills develop together in what some call a "mirror-like" process (Cunningham & Cunningham, 1992). The knowledge of letters and sounds that children demonstrate in their writing is often reflected in their decoding of words. For example, a young child who only uses the first letter or sound of a word in his spelling will often focus only on the first sound of the word when attempting to read. The relatedness of reading and spelling seems evident when looking at their other terms. Reading can be called the print-to-speech match and spelling is labeled the speech-to-print match. It would make sense that a child who can go through the process one-way (print-to-speech) would be able to do it in the reverse (speech-to-print). But, many students with normal reading skills struggle to make the speech-to-print match. The question then becomes: Is the relationship between reading and spelling really that strong?

The majority of research has shown that reading and spelling achievement are closely related processes. Morris and Perney (1984) examined how early spelling skills are related to later reading achievement by studying 75 first grade students. In September the students were given an 18 word spelling assessment and the teacher were asked to rank the students by where he/she felt that they would be reading in the spring. In January the same 18-word list was given to the students and scored developmentally. Two reading achievement tests were administered in May, one word recognition and one word knowledge/comprehension. Their results indicate that

the students' developmental spelling in September is a good predictor of reading achievement at the end of first grade (Morris & Perney, 1984). What children know about letters and sounds in the fall is shown in their spelling and is later demonstrated in their reading.

Zutell and Rasinski (1989) demonstrate another example of support for spelling and reading as related in their study of third and fifth graders. All of the students were asked to read a passage aloud and take a spelling test. Following this, the students took the appropriate level Gates-MacGinitie Reading Test. The researchers compared reading rate, reading accuracy, spelling accuracy and the Gates-MacGinitie scores and found that spelling accuracy is best correlated with oral reading ability (Zutell & Rasinski, 1989). The ability to read one's own invented spelling was examined by Gill (1989). He studied first, second and third graders' reading of correctly spelled words and invented spellings. The children took a spelling assessment of 41 words. Later they were asked to read a list of words, half were their own incorrect invented spellings and half were correctly spelled. Obviously, the third graders could read more of the words correctly than could the first graders, but the results show that even across the different grade levels word recognition and spelling have a strong relationship (Gill, 1989).

For the most part, it seems as though researchers have concluded that reading and spelling are related processes. But, how does this explain the few students who are truly discrepant in their reading and spelling achievement? Frith (1980) determined that a very small percentage (2%) of the population could be classified as good readers/poor spellers; that is to say that there is a discrepancy in their reading and spelling abilities. Even if a child has

average spelling skills for his/her age, they are still labeled as poor spellers if their reading abilities are far above their spelling. Frith studied 120 students between the ages of 11 and 13 who were grouped into three categories: good readers/good spellers, good readers/poor spellers, and poor readers/poor spellers. In the good readers/poor spellers group their reading skills were equal to the good readers/good spellers and their spelling skills were equal to the poor readers/poor spellers (Frith, 1980). The students with the discrepancy in achievement, the good readers/poor spellers, showed that they make more phonological errors than the poor readers, have more consistent misspellings, attempt to retain sounds in their spellings, and have trouble going from print to sound. These good readers/poor spellers are able to read by partial cues, which helps them be fast and fluent readers. Unfortunately, they also attempt to spell by partial cues or 'by ear', which does not seem to work when spelling. The English language has different ways to show the same sound so the word might sound ('by ear') right even if it is spelled incorrectly (ex. clowd for cloud). Frith (1980) demonstrates that reading and spelling are not always "two sides of the same coin" for all children (p. 515).

The present study was an attempt to improve the spelling achievement of two kindergarten students, Keith and Sarah*, through the implementation of the Phono-Graphix™ method. These two children fit into the Frith (1980) category of good readers/ poor spellers. It had been previously determined that both Keith and Sarah had an instructional reading level of 2nd grade. Keith has excellent word recognition and Sarah is stronger at comprehension, but in the end, they are almost identical in terms of their reading achievement. Their teacher had

* Names have been changed

noticed that while their reading skills were far ahead of their peers their spelling was only average in comparison with the rest of the children. According to Frith (1980), even though their spelling is "normal" for their age, such a discrepancy would categorize them as poor spellers.

The program selected for use in this intervention was the Phono-Graphix™ method, which was created by Carmen and Geoffrey McGuinness (1999). The Phono-Graphix™ method is developed as a reading program, not as a spelling program; however, the method teaches both spelling and reading skills together. The theory behind the method is that children need explicit instruction in the nature of the code of our language (McGuinness & McGuinness, 1998). The four main principles guiding the Phono-Graphix™ method are letters are pictures of sounds, a sound can be represented by one or more letters, there are different ways to show the same sound, and sometimes the same 'sound picture' represents different sounds. Although this may seem confusing, it is very clearly described and explained in the Phono-Graphix™ manual and book. The Phono-Graphix™ method does not teach any phonics rules, but rather shows children the different ways that sounds can be represented.

The hypothesis of this study was that Keith and Sarah's spelling achievement would improve through participation in the Phono-Graphix™ method. Both children experienced a significant difference between their reading and spelling skills. Similar to the good readers/poor spellers described by Frith (1980), Keith and Sarah could read fluently or 'by eye', but their strategy of spelling 'by ear' was failing them. The Phono-Graphix™ method encourages children to look at each and every sound in a word. It also teaches students a variety of ways to represent the same sound (ex. long 'e') and that some combinations of letters might look the same but they

represent different sounds (ex. 'ow'). This explicit instruction, it was believed, would help Keith and Sarah discover the code of our language and to represent that code in their spelling. Hopefully, the Phono-Graphix™ method would teach Sarah and Keith the skills necessary to raise their spelling achievement up to par with their reading level.

Method

Participants

Two kindergarten students (one male and one female, mean age = 5:11) participated in this study. Both children attended the same private coeducational elementary school. They were selected as participants based on the discrepancy between their reading and spelling achievement.

Materials

The spelling assessment list was taken from the Words Their Way elementary spelling inventory 2 (Bear, Invernizzi, Templeton & Johnston, 2000). The assessment contained the first 10 words of the list. All of the lessons were taught using the Phono-Graphix™ Word Work manual designed by Carmen and Geoffrey McGuinness (1999). The manual includes word lists, reproducible activities, lesson plans, extension ideas and reading materials.

Procedure

The study began by determining the children's pre-intervention spelling levels using a Words Their Way spelling inventory. Both children were assessed at the same time at the end of January. For the assessment a word was read aloud, followed by a sentence including the word, and then the word alone again. The students were told to do the best that they could and

understand that they were not expected to spell all of the words correctly. They were also directed to listen for the sounds that they heard in each word and to record those sounds. The spelling assessments were scored along a developmental continuum noting the correct features of the incorrectly spelled words (Bear et al., 2000). The possible stages of spelling include emergent, letter name, within word pattern, syllables and affixes, and derivational relations. At each stage there is also the label of early, middle or late to further characterize the spelling level. Based on the correct and incorrect features of their spellings, it was determined that both Keith and Sarah were mid-late letter name spellers. This meant that they could correctly spell most simple, short vowel words, that they would occasionally substitute vowels, and that most of their long vowel sounds were not marked (Bear et al., 2000).

For the next eight weeks following the spelling assessment, Keith and Sarah worked on the Phono-Graphix™ activities for 40 minutes once a week. It is important to note, and it will be repeated, that the researcher of this study was not a trained Phono-Graphix™ instructor. However, all lessons, activities and routines set forth in the manual were followed exactly. We began implementation of the Phono-Graphix™ method at the Blue Level, which dealt mostly with adjacent consonants (McGuinness & McGuinness, 1999). These lessons included words such as ant, elm, swim, drop and plum. The activities were word building, reading and phoneme manipulation. Keith and Sarah were able to progress very quickly through the Blue Level due to their excellent reading skills. They were not tricked, as some children are, into thinking that the first letter in a word such as "elm" is 'l'. Many children have learned the name for 'l' and pronounce the sound the same way by saying 'el'. The Phono-Graphix™ method teaches

students that 'el' is actually the two sounds of 'e' and 'l' put together. Keith and Sarah would often correct themselves when the simple words did not "look" right to them.

The next level was the Purple Level for teaching the advanced code. Sarah and Keith progressed much more slowly through the lessons and activities at this level. It is at the Purple Level that students are really introduced to the idea that sounds can be represented with one or more letters and that sometimes the same combination of letters can represent a different sound (McGuinness & McGuinness, 1999). Lessons at this level included word building, directed discovery and mapping, phoneme discrimination, sound searches, and scratch spelling sheets. Because of the limited number of sessions, not all of the activities or word lists at this level were completed. The majority of activities that were concluded focused on teaching the different ways to represent the long vowel sounds of 'a', 'e' and 'o'. Sarah and Keith also finished a lesson on the sound 'ow' in words such as "house" and "cow".

After eight sessions using the Phono-Graphix™ method, Keith and Sarah's spelling skills were reassessed. The same 10 words from the Words Their Way elementary spelling inventory 2 list were used (Bear et al., 2000). It is important to note that these 10 words were never part of any of the Phono-Graphix™ activities and that neither Keith nor Sarah received any instruction in the correct spelling of these words. Also, the children were not told that they would be reassessed following the completion of the intervention. Again, the spelling assessments were scored along the developmental continuum established by Bear and colleagues (2000). The correct and incorrect features of the children's spellings were noted and examined.

Results

Prior to the Phono-Graphix™ intervention, Keith and Sarah's spelling indicated that they were mid-late letter name spellers. (See Appendix A). This label was based on their correct spelling of words such as "net" and incorrect spelling of words such as "crime" (crim). They were substituting vowel sounds and not marking the long vowels. After the eight Phono-Graphix™ sessions, both Keith and Sarah's spelling showed improvement. They had progressed to the early-mid within word pattern spelling stage. The main feature of improvement for both Sarah and Keith was the marking of the long vowel in words such as "crime" and "chain". Although Sarah did not correctly spell "chain" (chaen) or "soap" (soep), her spellings became more conventional and closer to accurate. (See Appendix B). Keith was able to correctly spell "forest" and "soap" after the Phono-Graphix™ intervention. (See Appendix C).

Discussion

The original hypothesis that Keith and Sarah's spelling performance could be improved through the implementation of the Phono-Graphix method was supported by this study. Both Sarah and Keith continued to correctly spell words that they had gotten right on the pre-intervention assessment, as well as learned to spell some new words correctly. Even the words that they did not spell accurately on the post-intervention assessment had more correct features and were closer to conventional spelling than before. Keith and Sarah both seemed more confident in their spelling skills following the Phono-Graphix™ lessons. The students finished the intervention at the early-mid within word pattern spelling stage, which is more in line with their 2nd grade reading level (Bear et al., 2000). Often teachers make reading group placements based on reading, writing and spelling skills; their weak spelling achievement may have held

them back. It is likely in the fall that Keith and Sarah will be placed in the appropriate reading groups because their skills are more even now.

The lesson that benefited the students the most was sound scratch spelling. For example, if the sound focus was one the different ways to show the long 'o' sound ('o-e'), the children would write the different sound pictures across the top of their page. If the word were "most" they would write it as "moast", "moste", "mowst" and "most" and then decide which one looked like the correct version. Sarah and Keith's reading skills made this task very simple for them. They learned that they could use this strategy when they were stuck on the spelling of a word.

The results of the Phono-Graphix method intervention seem promising. Keith and Sarah were able to improve their general spelling achievement. They were never given a list of words and told to memorize them; rather, they learned about the code of our language and ways in which to use that knowledge in different situations. It is likely that Sarah and Keith, both very bright children, could have memorized the list and spelled every word accurately on a test, but would they still know those words a week later? Probably not. Phono-Graphix™ gave them the skills not for specific words, but for all words. Perhaps, this is the beginning of a new way to look at spelling instruction in the classroom.

As with most research, this study has its limitations. There were only two children who participated in the Phono-Graphix™ method, which means that the results cannot be generalized to a larger population. A much larger sample size would be required to improve the external validity. Because of the small group the researcher was able to give a great deal of individual attention to each student; this would not be possible with an entire classroom of children.

Another key factor to consider is Keith and Sarah's reading level. Being extremely strong readers for their age meant that they could read all of the words presented to them. They learned quickly to take advantage of their reading skills and self-check while spelling. A child with weak reading skills would not have this beneficial tool to help with their spelling. Finally, as mentioned previously, this researcher was not a trained Phono-Graphix™ instructor. Someone more familiar with the format, lessons, activities, and routines could probably progress more quickly and have a greater effect on the students' spelling achievement.

However, the positive findings of the present study indicate that Phono-Graphix™ might be an important instructional addition to classrooms with struggling spellers. Much more research is needed to determine exactly how the children's spelling is affected by the Phono-Graphix™ method and if the present results can be replicated in the future. It will be important to look at whole class instruction and poor readers/poor spellers, two components that were missing from this study. There are many directions in which this current research topic can proceed, hopefully, with the same favorable findings of improving children's spelling achievement.

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Appendix A

Spelling Performance Prior to Phono-Graphix™ Method Intervention

<u>Target Word</u>	<u>Sarah</u>	<u>Keith</u>
net	net (MLN)*	net (MLN)*
trip	trip (LLN)*	trip (LLN)*
crime	crim (ELN)	crim (ELN)
dump	dump (LLN)*	dump (LLN)*
then	then (LLN)*	tien (ELN)
chain	chan (EMLN)	chne (MLN)
forest	forist (EWW)	forist (EWW)
trail	trel (MLN)	trel (MLN)
soap	sope (EWW)	soup (EWW)
reaches	rethis (LLN)	rechis (LLN)

- * indicates a correctly spelled word
- () indicates spelling stage

Appendix B

Sarah's Spelling Performance

<u>Target Word</u>	<u>Pre-Phono-Graphix™</u>	<u>Post-Phono-Graphix™</u>
net	net (MLN)*	net (MLN)*
trip	trip (LLN)*	trip (LLN)*
crime	crim (ELN)	crime (MWW)*
dump	dump (LLN)*	dump (LLN)*
then	then (LLN)*	then (LLN)*
chain	chan (EMLN)	chaen (MWW)
forest	forist (EWW)	forist (EWW)
trail	trel (MLN)	tral (MLN)
soap	sope (EWW)	soep (MWW)
reaches	rethis (LLN)	rethis (LLN)

- * indicates a correctly spelled word
- () indicates spelling stage

Appendix C

Keith's Spelling Performance

<u>Target Word</u>	<u>Pre-Phono-Graphix™</u>	<u>Post-Phono-Graphix™</u>
net	net (MLN)*	net (MLN)*
trip	trip (LLN)*	trip (LLN)*
crime	crim (ELN)	crime (MWW)*
dump	dump (LLN)*	dump (LLN)*
then	tien (ELN)	then (LLN)*
chain	chne (MLN)	chane (MWW)
forest	forist (EWW)	forest (LWW)*
trail	trel (MLN)	trale (EWW)
soap	soup (EWW)	soap (MWW)*
reaches	rechis (LLN)	rechis (LLN)

- * indicates a correctly spelled word
- () indicates spelling stage